National Institute of Environmental Health Sciences

A time-series analysis of any short-term effects of meteorological and air pollution factors on preterm births in London, UK

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Abstract:

Although much is known about the incidence and burden of preterm birth, its biological mechanisms are not well understood. While several studies have suggested that high levels of air pollution or exposure to particular climatic factors may be associated with an increased risk of preterm birth, other studies do not support such an association. To determine whether exposure to various environmental factors place a large London-based population at higher risk for preterm birth, we analyzed 482,568 births that occurred between 1988 and 2000 from the St. Mary's Maternity Information System database. Using an ecological study design, any short-term associations between preterm birth and various environmental factors were investigated using time-series regression techniques. Environmental exposures included air pollution (ambient ozone and PM(10)) and climatic factors (temperature, rainfall, sunshine, relative humidity, barometric pressure, and largest drop in barometric pressure). In addition to exposure on the day of birth, cumulative exposure up to 1 week before birth was investigated. The risk of preterm birth did not increase with exposure to the levels of ambient air pollution or meteorological factors experienced by this population. Cumulative exposure from 0 to 6 days before birth also did not show any significant effect on the risk of preterm birth. This large study, covering 13 years, suggests that there is no association between preterm births and recent exposure to ambient air pollution or recent changes in the weather.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Meteorological Factors, Precipitation, Solar Radiation

Air Pollution: Interaction with Temperature, Ozone, Particulate Matter

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : United Kingdom

Health Impact: M

specification of health effect or disease related to climate change exposure

Developmental Effect

Developmental Effect: Reproductive

Population of Concern: A focus of content

Population of Concern: M

populations at particular risk or vulnerability to climate change impacts

Pregnant Women

Resource Type: M

format or standard characteristic of resource

Research Article

Timescale: M

time period studied

Time Scale Unspecified